



# USAMRIID's Contagious Casualty Evacuation and Care Capabilities

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Diseases

## 2 components:

- Special Medical Augmentation Response Team for Aeromedical Isolation (SMART-AIT or “AIT”)
- BSL-4 Medical Containment Suite (MCS)

# AIT CONCEPT

A rapid response team that can deploy to any area of the world foreign or domestic to transport and provide medical care under high containment to a limited number of patients exposed to, or infected with highly contagious, potentially lethal pathogens.

# AEROMEDICAL ISOLATION TEAM (AIT)

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- **Worldwide mission-capable (with USAF transport) for evacuation of highly infectious casualties**
- **Only BSL- 4 capable patient transport in US**
- **Special isolator units used to contain and transport patients**
- **Two 8-12 person deployable teams**
  - **Each team can transport and manage one patient**



# Team Composition

- 1 Medical Director, Medical Corps (AOC non-specific)
- 1 Officer-in-Charge, Army Nurse Corps, AN (AOC non-specific)
- 1 Non-Commissioned Officers-in-Charge (NCOIC)(MOS 91W30/40)
- 6 Health Care Specialists (MOS 91W/91K/91T).
- 1 Veterinary Technician (MOS 91K).

# Major Equipment (total)

- Aircraft Transit Isolators - 2
- Stretcher Isolators - 4
- Laboratory Bench Top Isolators – 2 (mission dependent)
- Protective Over garments w/HEPA filters (RACAL)-20
- Defibrillator, Portable with Monitor – 3
- Portable Gas-powered Generators – 2
- Infusion Pumps – 4
- Suction Apparatus – 4
- Basic EMT/Paramedic Drugs/supplies







# AIRCRAFT TRANSPORT ISOLATOR (Vickers-Trexler)

- **Transparent PVC**
- **Two half suits to improve patient care**
- **Battery or aircraft power operated**
- **Suitable for :**
  - **C-130 or C-141 aircraft**
  - **Some Rotary Wing Airframes**
- **Dimensions: 87 X 60 X 36 in; Wt 247 Lbs.**
- **Designed to remain on the waiting aircraft.**





# STRETCHER ISOLATOR

- **Specially Equipped Standard NATO Litter**
- **Transparent PVC**
- **HEPA Air Filtration System**
- **Battery Powered (Up to Six Hours Per)**
- **Patient Care Access Limited Once Contained**



# FIELD LAB ISOLATOR

- BSL-4
  - Negative pressure
  - HEPA filtered

-Deployed to  
Bronx Zoo, NY.  
(West Nile virus  
outbreak, 1999)



# AIT CAPABILITIES

- Can deploy two teams simultaneously
- Each team can transport and manage one patient
- Portable containment laboratory
  - Rapid diagnosis- ELISA, etc
  - Standard clinical laboratory



# PRIMARY METHODS OF TRANSPORT

## Rotary Wing

- Ch-47  
Chinook





# PRIMARY METHODS OF TRANSPORT

## Fixed Wing

- C-130
- C-141
- C-17









CH-47 Load Configuration

C-130 Load Configuration















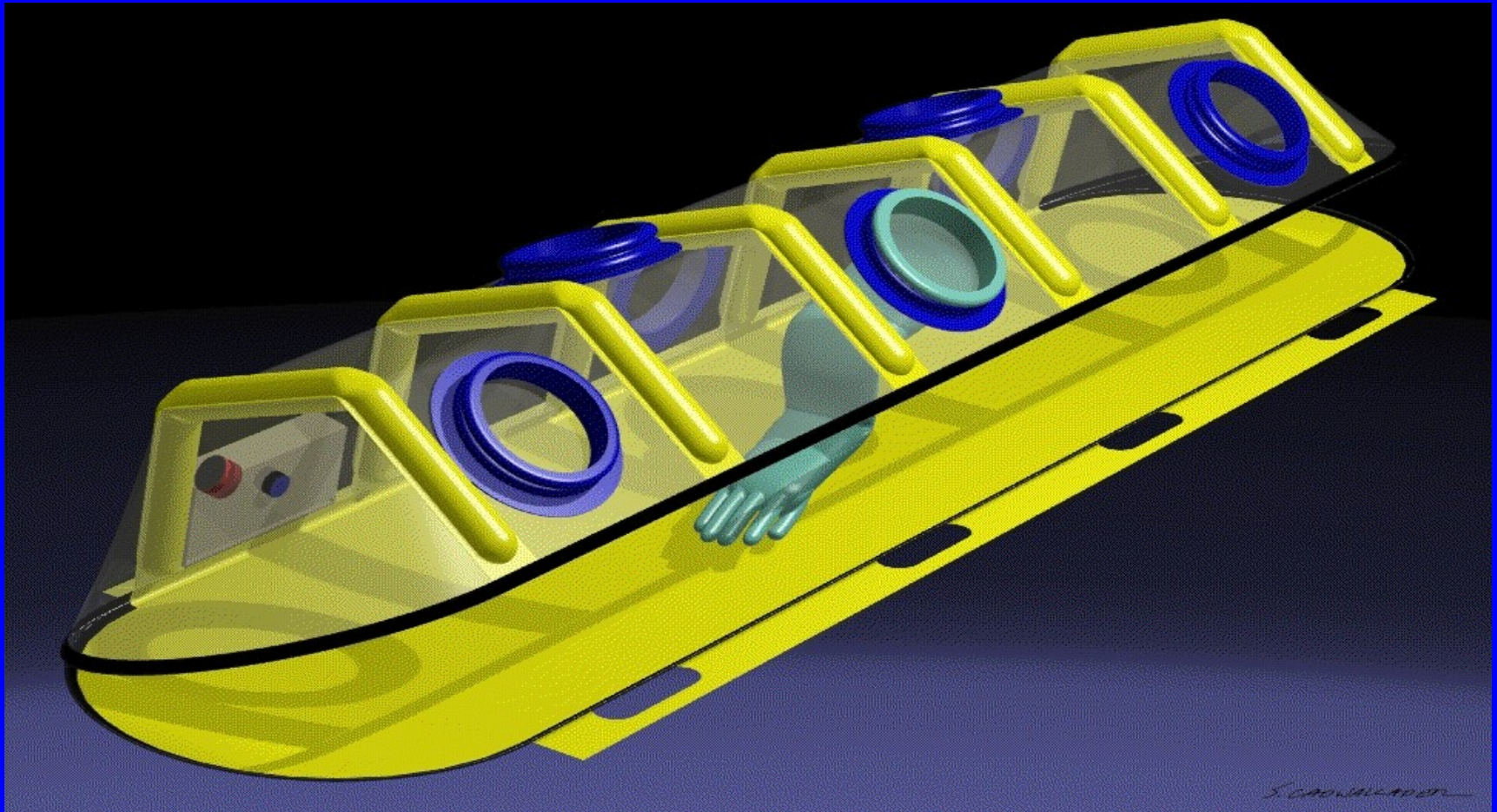
# Problems

- Very limited capability
- No specific Funding
- No clear Mission Statement
- No clear procedure for:
  - requesting services
  - Transport of team
- Legal issues:
  - interstate/international transport
  - Civilians/non-US nationals
- Interservice issues
- Treatment facilities capable of receiving patients



ALION PROPRIETARY AND CONFIDENTIAL

# Individual Isolation Pod





# BSL-4 MCS

## “Ward 200” of WRAMC

- Two BSL-4 patient rooms
- BSL-4 “surgical suite”
- **Primary mission:** to provide containment for USAMRIID lab workers exposed to BSL-4 agent
- **Secondary:** to provide some level of care to these patients.
- **Tertiary:** care to others from outside institute?



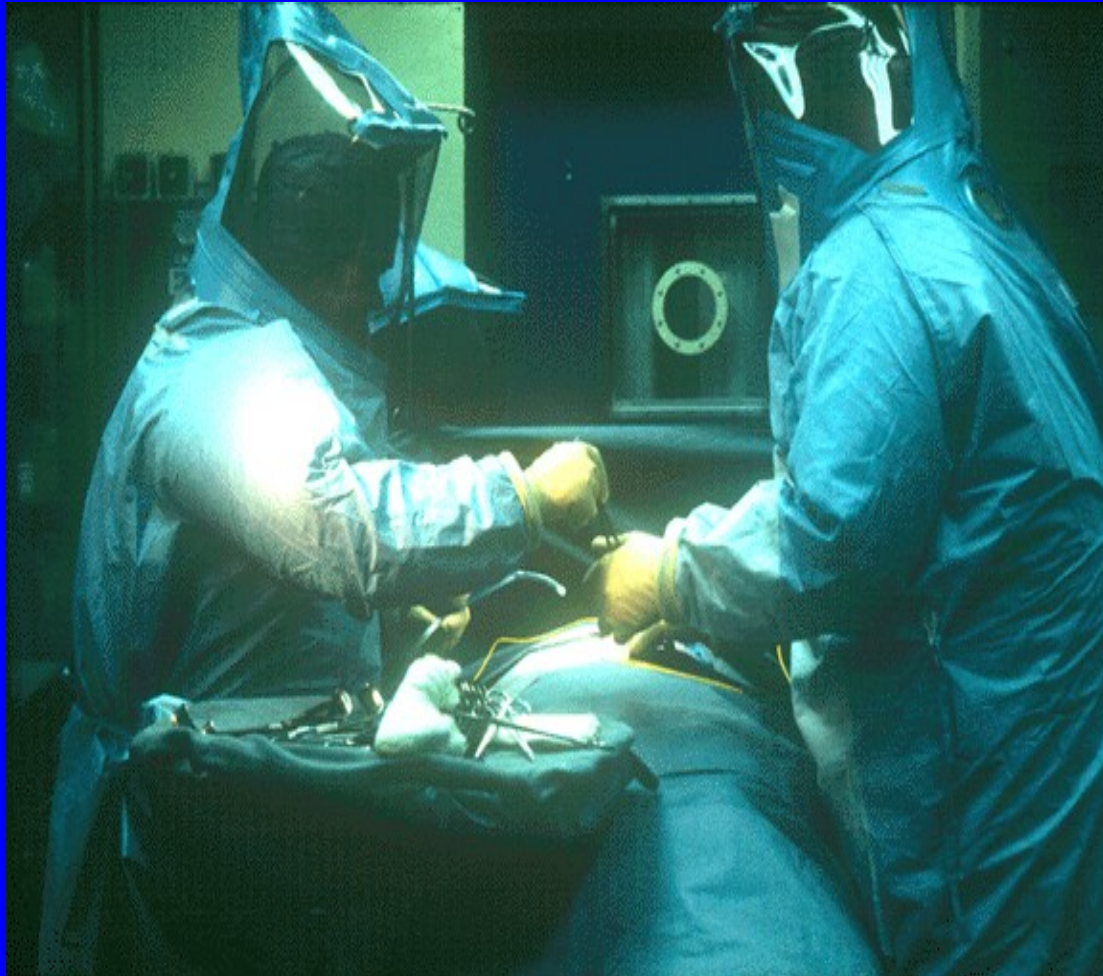
# MCS capabilities

- “~ ICU” level care for up to 2 patients with exposure to same agent (4 pts?)
- Staff:
  - Initially USAMRIID, then
  - Walter Reed Medical Team (MAT)





# High Containment Operating Room



# Problems with MCS

- Limited Capability
  - No blood bank, pharmacy, sub-specialists, anesthesia on site
  - Limited radiology (plain X-ray only), limited clinical lab
- No clear funding
  - Supplies from WRAMC
- No Clear MOU with WRAMC
- No Clear Mission Statement
  - Level of care?
- Legal Issues:
  - Accreditation/Standard of Care
  - Care of other-than-DoD personnel
  - Transport of pts across borders to MCS



# Summary

- USAMRIID has some capability to transport and care for BSL-4 level contagious casualties, but it is limited
  - “Andromeda strain” or  $\leq 2$  patients
- Many issues must be sorted out before maximally effective:
  - Funding/staffing
  - Scope of mission
  - legal

# Questions?



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# AOR

Event

BAS

BAS

ACC

"ID EMEDS"

Treatment in Place

Resupply:

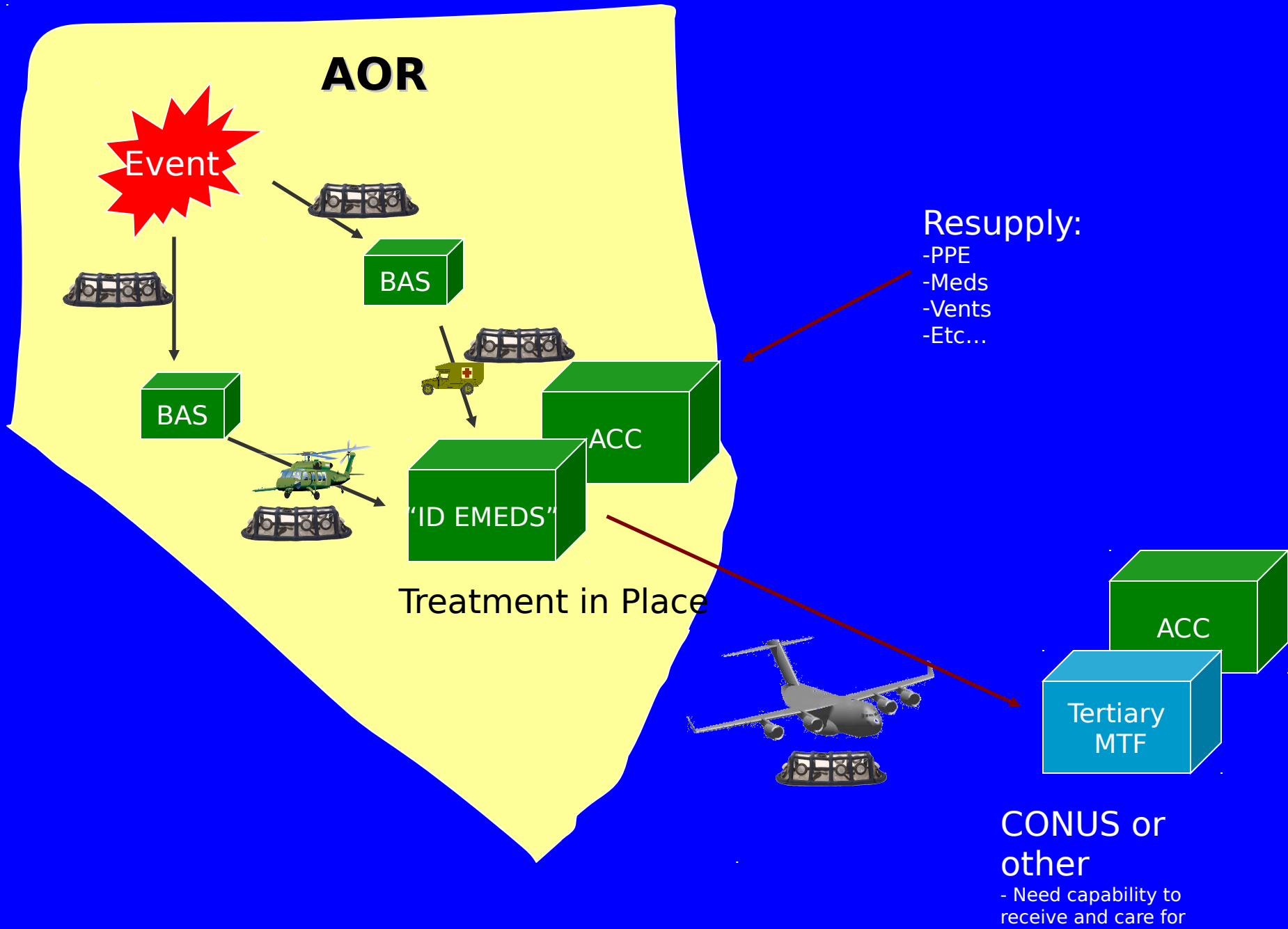
- PPE
- Meds
- Vents
- Etc...

ACC

Tertiary  
MTF

CONUS or  
other

- Need capability to  
receive and care for





## SMART - Aero-Medical Isolation Team (SMART-AIT)

(1) On order, the team assembles and deploys within 12-hours. It provides professional aero-medical isolation capability (technical advice and support) to local medical authorities in the management of events, incidents and consequences associated with infected patients.

(2) Provides a rapid response evacuation unit to any area of the world to transport a maximum of two patients simultaneously.

(3) Provides patient care under conditions of biological containment to service members or civilians exposed to or infected with certain contagious diseases.

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# AIT DEPLOYMENTS

- Deployed to Reston, Virginia, Ebola outbreak, 1989
- Deployed to Sweden in support of Marburg patient management, 1989
- On call for Yale researcher with Sabia virus exposure, 1994
- Alert for Ebola, Zaire outbreak, 1995
- Deployed to Wright-Patterson AFB, Bio-bomblets, Dec 1995
- NYC, Bronx Zoo, West Nile virus, Oct 1999
- Alert to support with possible Ebola exposure in Uganda, Africa in December 2000

